REMARKS/ARGUMENT

Claims 1-13, and 15-27 are pending after entry of the present Amendment. Claim 1 is herein amended to provide a requisite antecedent basis. Claim 15 is herein amended to effect a minor grammatical correction. Claim 18 is herein amended as described below. Claim 14 is herein canceled. No new matter has been introduced.

Objections to the Specification

The disclosure was objected to because of a noted informality in claim 18. Claim 18 is herein amended as reflected in the Listing of Claims above. At line 3 of claim 18, "a item (j)" has been amended to --the selected item (j)--.

Claim Objections

Claim 18 was objected to because of a noted informality. Claim 18 is herein amended as reflected in the Listing of Claims above. At line 3 of claim 18, "a item (j)" has been amended to --the selected item (j)--.

Rejections under 35 USC §102

Claims 1-27 were rejected under 35 USC §102(e) as being anticipated by Rajaraman et al. (U.S. Patent No. 6,366,910). Applicant respectfully traverse this rejection and request reconsideration.

In order for a reference to anticipate a claim, each and every element as set forth in the claim must be found in the reference, either expressly or inherently described. MPEP 2131. Applicant respectfully submits that Rajaraman et al. do not anticipate Applicant's claims 1-27.

In independent claim 1, as amended herein, Applicant claims a method of information structuring in a data set containing a plurality of interrelated objects. The method includes ranking related objects based upon relationship strength, clustering the related objects, and computing a number of affinity charts per object. According to the Office, Rajaraman et al. teach computing a number of affinity charts per object at col. 5, lines 52-64. The cited section states the following:

> The GPS hierarchical displayer receives the results of the GPS
> search engine and first determines which highest level classification
> (e.g., department) has the highest score. The GPS hierarchical

displayer selects those classifications with that highest level classification with the highest score and displays the name of the highest-level classification along with the names of the selected classification. The GPS hierarchical displayer can select a predefined number of such classifications or select a variable number depending on the differences in the scores of the classifications. The GPS hierarchical displayer then repeats this process for the highest level classification with the next highest score and so on.

The reference is essentially teaching the returning of results of a search by category or classification. Although sub-groups are essentially searched according to a pre-defined number of categories or classifications, and therefore the search is multi-layered, the reference does not teach or suggest an affinity chart. As defined and illustrated in Applicant's disclosure (*e.g.*, see Figures 1 and 2), an affinity chart includes a principal item and pluralities of related items. Each related item includes a navigational link and a search link. The affinity chart can be a graphical representation as illustrated in Figures 1 and 2, or a list of items, each having a navigational link and a search link (see page 5, lines 6-8).

The cited reference fails to teach, or suggest, an affinity chart, and therefore fails to disclose each and every element as set forth in Applicant's independent claim 1. Applicant submits independent claim 1 is not anticipated by Rajaraman et al., and is therefore patentable under 35 USC § 102. Dependent claims 2-4 are patentable for at least the same reasons.

Applicant's independent claim 5 recites a method of generating a graphical layout. The method includes selecting a principal node for said graphical layout, and generating at least one affinity chart in connection with said principal node. The method then includes sequentially establishing related items along the at least one affinity chart by rank. The office cites a number of areas in the Rajaraman et al. reference, most notably, Figure 4. Applicant notes, as described above, Figure 4 is not an affinity chart as described, illustrated, and claimed by Applicant. As the Background section of the reference describes, many search tools may rank found documents based on various factors including the frequency of the words of the search criteria. Figure 4 of the reference does illustrate a hierarchical organization of items, but it does not teach,

disclose, or suggest an *affinity* between the plurality of categories. It might be assumed that the corresponding "principal" node is "Clothing & Accessories," but there is nothing to suggest or illustrate the strength of the relationship between objects. Figure 4 illustrates a simple hierarchical structure having a category, and subsets of the category graphically represented. By way of example, if the category is "Clothing & Accessories," all "Men's Apparel" is in, or a subset of, "Clothing & Accessories," all "272 Shirts" are in, or a subset of, "Men's Apparel" and therefore also in, and a subset of "Clothing & Accessories." Applicant, on the other hand, has described, illustrated, and claimed an *affinity* chart in which relationships are illustrated and described as discussed below, but such relationships are not limited to mere subsets in an hierarchical structure.

Rajaraman et al. do not teach, or suggest, an affinity chart, and therefore do not disclose each and every element as set forth in Applicant's independent claim 5. Applicant submits independent claim 5 is not anticipated by Rajaraman et al., and is therefore patentable under 35 USC §102. Dependent claims 6-13, each of which depend directly or indirectly from independent claim 5 are patentable for at least the same reasons.

Applicant herein cancels independent claim 14.

In independent claim 15, Applicant claims a method for providing visualization of items from data sets. The method includes determining, for a plurality of items from the data set, a set of properties, said set of properties including a relationship to each other of the subsets of items in the data set, and a value applied to the relationships between the items. The method further includes applying local rankings of the relationships between terms, by ranking items i that relate to each item j, and ranking all items k to which item j relates, thereby ranking the affinity of each item j to item sets i and k. A visualization is generated by presenting results separately for each item in a data set and adjusting the presentation to avoid information overlap and overload. The method then includes providing separate presentation for each item of the data set by generating an affinity chart for each item j in the data set, thereby displaying items closely related to selected item j, with item j placed prominently in the affinity chart, and placing items which are more strongly related to j closer to j.

The Office asserts that Applicant's independent claim 15 encompasses the same scope of invention as that of independent claim 1, and dependent claims 8 and 13, apparently suggesting the same citations from the reference. In addition to Applicant's previous argument set forth above regarding an affinity chart, Applicants respectfully point out that independent claim 15 more specifically recites the relationships *to each other* of the subsets, as well as the relationships *between the items*. In the reference, the returned search results are organized in a hierarchical structure, however the structure may be defined, and no relationship is defined, or suggested, between items except for the category of the search. In the present application, Applicant has described, illustrated, and claimed an affinity chart as described above, and the relationships between terms, by ranking items i that relate to each item j, and ranking all items k to which item j relates, thereby ranking the affinity of each item j to item sets i and k. The reference neither teaches or suggests such relationships, and cannot do so within the framework of the search Rajaraman et al. discloses. Therefore, the Rajaraman et al. reference does not anticipate Applicant's independent claim 15 since the reference fails to disclose each and every element as set forth in Applicant's independent claim 15. Applicant submits independent claim 15 is therefore patentable under 35 USC §102. Dependent claims 16-18 are patentable for at least the same reasons.

Applicant's independent claim 19 recites a method for providing visualization of data sets containing a large number of items from said data sets. The method includes employing continuous curves including spiral segmentation in order to connect items relating to a primary item at different intensity levels. The visualization is adjusted to avoid information overlap and overload, and the items related to said primary item are grouped by strength of affinity. The method further includes providing an affinity chart, and spacing each related item individually with each item placed in an on-overlapping position. Items are presented with large numbers of related items with multiple affinity charts, and in the case of multiple affinity charts, a first affinity chart is provided to visually represent a set of most strongly related items and providing next or subsequent related affinity charts to visually represent less strongly related items. The method then includes using curves to represent a relationship of items related to a particular item

positioned at a starting point for the curve, with distance along the curve representing a strength of affinity to the item at the starting point of the curve. Finally, the method includes selectively employing color and shading gradations and curve thickness gradations are to emphasize the curve's role in conveying affinity strength, while placing items so they do not overlap or crowd each other.

Applicant submits that claim 19 is not anticipated by Rajaraman et al. for at least the same reasons as recited above. Again, in order for a reference to anticipate a claim, each and every element as set forth in the claim must be found in the reference, either expressly or inherently described. That Rajaraman et al. describe highlighting or bolding text does not disclose selectively employing color and shading gradations and curve thickness gradations to emphasize the curve's role in conveying affinity strength, while placing items so they do not overlap or crowd each other. Rajaraman et al. do not teach affinity charts, but rather teach simple hierarchical search results. Rajaraman et al. therefore do not anticipate Applicant's independent claim 19, and Applicant submits independent claim 19 is patentable under 35 USC 102.
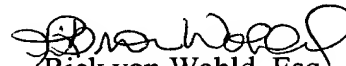
Independent claim 20 recites a method for providing visualization of arbitrarily large data sets using low and local computational resources. The method includes determining, for at least a plurality of said data sets, a set of properties, said set of properties including a relationship to each other of the subsets of items in the data set, and a value applied to the relationships between the items. Then, at least one primary item is determined for the visualization. The method then includes applying local rankings of the relationships between terms, by ranking a first relational set of items that relate to the primary item, and ranking a second relational set of items to which the primary item relates, thereby ranking an affinity to each primary item to the first relations set of items and to the second relational set of items. A visualization is generated by presenting results separately for each item in a predetermined data set and adjusting the presentation to avoid information overlap and overload. The method then includes providing separate presentation for each item of the data set by generating an affinity chart for each primary item in the data set, thereby displaying items closely related to a selected primary item, with the primary item placed prominently in the affinity chart, and

In view of the foregoing, Applicant respectfully requests reconsideration of claims 1-13 and 15-27. Applicants submit that all claims are in condition for allowance. Accordingly, a notice of allowance is respectfully requested. If Examiner has any questions concerning the present Amendment, the Examiner is kindly requested to contact the undersigned at (408) 749-6900, ext. 6905. If any additional fees are due in connection with filing this amendment, the Commissioner is also authorized to charge Deposit Account No. 50-0805 (Order No. ROXIP277). A copy of the transmittal is enclosed for this purpose.

Applicant further notes that on April 4, 2003, a Combined Statement Under 37 C.F.R. §3.73(b) Establishing Right of Assignee to Take Action and Power of Attorney by Assignee of Entire Interest and Revocation of Prior Powers with supporting appendices A-C were filed in this application. Copies of the as-filed documents are enclosed for Examiner's reference.

Respectfully submitted,
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